

REMARKS

Claims 1-28 are pending in the present application. Claims 1, 17 and 24 have been amended.

Claim Rejections-35 U.S.C. 103(a)

Claims 1-7, 9-12 and 17-23 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Moslehi et al. reference (U.S. Patent No. 6,073,576) in view of Applicant's admitted prior art Figs. 6-8. This rejection, insofar as it may pertain to the presently pending claims, is traversed for the following reasons.

The semiconductor manufacturing apparatus of claim 1 includes in combination a wafer support; a stage; and wafer clamps "that push a perimeter of said wafer from above said wafer to adjust a lateral position of said wafer, while said wafer leans against the tapered lateral side of said wafer support so that a gap arises between an undersurface of said wafer and an upper surface of said stage, and to fix said wafer on said stage". Applicant respectfully submits that the prior art as relied upon by the Examiner does not disclose or make obvious these features.

The Examiner has alleged that the Moslehi et al. reference discloses all the features of claim 1, except for wafer clamps. In order to overcome this acknowledged deficiency of the Moslehi et al. reference, the Examiner has alleged that the use of wafer clamps in the Moslehi et al. reference would have been obvious in view of wafer clamps 16 of Applicant's admitted prior art. Applicant respectfully disagrees for the

following reasons.

As noted above, the wafer clamps of claim 1 function to adjust a lateral position of the wafer, while the wafer leans against the tapered lateral side of the wafer support so that a gap arises between an undersurface of the wafer and an upper surface of the stage, and function to fix the wafer on the stage. This is provided by the combination of the wafer clamps and the tapered lateral side of the wafer support, whereby the wafer clamps push a perimeter of the wafer while the wafer leans against the tapered lateral side of the wafer support. As may be readily understood in view of Explanatory Figs. A and B enclosed along with the Amendment dated May 5, 2004, the wafer clamps first adjust a lateral position of the wafer from the initial position of the wafer as shown in Explanatory Fig. A. In the initial position as shown in Explanatory Fig. A, the wafer leans against the tapered lateral side of the wafer support so that a gap exists between an undersurface of the wafer and an upper surface of the stage. The lateral position of the wafer is adjusted by the wafer clamps to the desired position in Explanatory Fig. B, whereby the wafer clamps subsequently fix the wafer to the stage.

Applicant respectfully submits that the prior art as relied upon by the Examiner does not disclose or suggest the combination of wafer clamps and a tapered lateral side of a wafer support that adjust a lateral position of a wafer, and fix a wafer to a stage. That is, this combination of wafer clamps and a tapered lateral side of a wafer support that adjust a lateral position of a wafer and fix the wafer to a stage is not disclosed or suggested in the Moslehi et al. reference, because the Moslehi et al.

reference does not include wafer clamps. Likewise, this combination of wafer clamps and a tapered lateral side of a wafer support that adjust a lateral position of a wafer and that fix the wafer to a stage is not disclosed or suggested in Applicant's prior art, because tapered recess 10a of susceptor 10 in Applicant's prior art Fig. 6 is specifically designed so as not to contact an edge of the wafer from below the wafer. Although the prior art may separately show wafer clamps and tapered lateral sides of a wafer support, neither of the references disclose or recognize the advantages of using the combination of wafer clamps and a tapered lateral side of a wafer support to both adjust lateral position of a wafer and to fix a wafer.

Moreover, Applicant respectfully submits that the Examiner has not established the necessary motivation to modify the Fig. 5 structure of the Mosheli et al. reference in view of Applicant's prior art. In particular, the Fig. 5 embodiment of the Moslehi et al. reference is specifically described in column 9, lines 52-55 whereby peripheral edge surface 148 of substrate 150 is engaged for purposes of sealing and centering, **but not for purposes of clamping**. It would therefore appear that the structure in Fig. 5 of the Moslehi et al. reference is specifically designed so as not to use wafer clamps of the type used in Applicant's prior art. One of ordinary skill thus would not be motivated to modify the structure in Fig. 5 of the Moslehi et al. reference to include wafer clamps, because the structure is apparently made so that wafer clamps are unnecessary. Accordingly, in absence of particularly relied upon prior art that discloses or suggests the combination of wafer clamps and a tapered lateral sidewall of a wafer support to

both adjust a lateral position of a wafer and to fix a wafer, it would appear that this rejection is based upon impermissible hindsight. Applicant therefore respectfully submits that the semiconductor manufacturing apparatus of claim 1 would not have been obvious in view of the prior art as relied upon by the Examiner taken singularly or together, and that this rejection, insofar as it may pertain to claims 1-7 and 9-12, is improper for at least these reasons.

The wafer-securing method of claim 17 includes in combination "adjusting a lateral position of said wafer, while said wafer leans against the tapered lateral side of said wafer support so that a gap arises between an undersurface of said wafer and an upper surface of said stage, and fixing said wafer on said stage, by using wafer clamps that push a perimeter of said wafer from above said wafer". Applicant respectfully submits that the wafer-securing method of claim 17 would not have been obvious in view of the prior art as relied upon by the Examiner taken singularly or together, and that this rejection, insofar as it may pertain to claims 17-23, is improper for at least somewhat similar reasons as set forth above with respect to claim 1.

Allowable Subject Matter

Applicant respectfully notes the Examiner's acknowledgment that claims 8, 13-16 and 24-28 are allowed.

Conclusion

Applicant respectfully notes that claim 24 has been amended merely to correct a minor informality, not to further distinguish over the prior art of record. Accordingly, the amendment to claim 24 should not be construed as narrowing scope within the meaning of *Festo*.

The Examiner is respectfully requested to reconsider and withdraw the corresponding rejection, and to pass all the claims of the present application to issue, for at least the above reasons.

In the event that there are any outstanding matters remaining in the present application, please contact Andrew J. Telesz, Jr. (Reg. No. 33,581) at (703) 715-0870 in the Washington, D.C. area, to discuss these matters.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment for any additional fees that may be required, or credit any overpayment, to Deposit Account No. 50-0238.

Respectfully submitted,

VOLENTINE FRANCO & WHITT, P.L.L.C.



Andrew J. Telesz, Jr.
Registration No. 33,581

11951 Freedom Drive, Suite 126
Reston, Virginia 20190
Telephone No.: (703) 715-0870
Facsimile No.: (703) 715-0877